REMARKS

Claims 163 and 166 are amended herein. Claims 163-171, 178-188 and 190-195 will be pending. Applicants note with appreciation the allowance of claims 180-188 and 190-194. Applicants respectfully request reconsideration and allowance of rejected claims 163-171, 178, 179 and 195.

Interview Summary

The undersigned would like to thank the Examiner for the time spent via telephone discussing the rejection of pending claims 163 and 178 with Mr. Klein on December 18, 2003. The Examiner agreed to reopen prosecution of the subject application because claim 178 includes features not considered in the previous action. With respect to claim 163, the Examiner and Mr. Klein discussed multiple aspects of claim 163, including potential amendments and cited references Fullemann and Lebl. Applicants have amended claim 163 herein as discussed between the Examiner and Mr. Klein. Applicants also submit the following further remarks.

Claim 163

As discussed during the interview and as currently amended, claim 163 is directed to a combinatorial chemistry reactor apparatus comprising

> vessels for containing said reaction mixtures under pressure, and
> an injection system for **introducing fluid into the vessels at pressures greater than about 10 psig**, said injection system comprising:
> a movable fluid delivery probe;
> fill ports for receiving the probe, said probe being movable from one fill port to another to deliver fluid;
> conduits connecting the fill ports and respective vessels;
> **valves for opening and closing said conduits**, each valve being operable to **open to permit the delivery of fluid** from the probe to a respective vessel **at a pressure greater than about 10 psig**, and **to close** before the probe is withdrawn from a respective fill port **for maintaining**

> **the reaction mixtures at pressures greater than about 10 psig after the probe is withdrawn**; and
>
> seals for maintaining the reaction mixtures under pressure when the valves are open during delivery of fluid from the probe.

(emphasis added). In particular claim 163 teaches, among other things, (i) opening valves for delivering fluid at pressures greater than about 10 psig and (ii) closing valves for maintaining the reaction mixtures at pressures greater than about 10 psig. Each of Lebl, Fullemann and Calvet fails to teach these key features and fails to provide the motivation for one skilled in the art to combine the references.

There is no teaching or suggestion in Lebl, Fullemann or Calvet to combine the valve teaching of Fullemann, the combinatorial chemistry teaching of Lebl and the introduction of a suspension at a pressure slightly above atmospheric of Calvet. First, Lebl fails to teach or suggest a need for an injection system for introduction of fluids into vessels already at pressures greater than about 10 psig. Lebl teaches introduction of fluids into vessels at ambient pressure, and only teaches pressurization after all the reactants are placed within the vessels. Lebl merely notes that the vessels react at pressure (Lebl, column 25, line 23 to column 26, line 12), but never teaches or suggests a need for introducing fluid at pressures greater than about 10 psig. Rather, Lebl teaches a two-step operation, (i) fluid delivery followed by (ii) vessel sealing and pressurization. As such, Lebl provides no motivation for the combination.

Second, Fullemann fails to teach or suggest application of its valve to reaction vessels reacting at pressures greater than about 10 psig. Fullemann is directed to introduction of samples into gas chromatography columns, requiring direct injection of samples into a moving carrier stream. Fullemann teaches a two-stage sealing device having a syringe seal 103 and a duckbill seal 105 for sealing a syringe needle 101. The Fullemann teaching is directed to solving a problem commonly associated with septum seals, namely leakage through the septum after repeated use. Fullemann teaches inserting samples into pressurized regions, but clearly does not teach, suggest or infer applying such insertion into pressurized regions to all applications

involving pressurized reactions, in particular those that do not explicitly require introduction of a sample under pressure. Applying the narrow teaching of Fullemann, providing a more durable seal, to all pressurized reactions, such as those disclosed in Lebl, is improper. As such, Fullemann provides no motivation for the combination.

Lebl and Fullemann are not to be combined as suggested by the Examiner because they are directed to two different processes having differing requirements. Lebl loads vessels with reactants at ambient pressure before a reaction begins, seals the fully loaded vessels and finally pressurizes the vessels during the normal course of a reaction. Lebl does not require an elaborate sealing system designed for injection at pressure as disclosed by Fullemann. Indeed, improperly utilizing Applicants' disclosure and hindsight, combining the Fullemann injection septum with the Lebl apparatus does provide an advantage over the two-step loading and pressurizing operation of Lebl. However, there is no teaching or suggestion to combine these references. Simply because their combination appears possible in light of Applicants' disclosure does not mean that there is an adequate teaching for an obviousness rejection.

"Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art." M.P.E.P. § 2143.01. Here, there is no motivation to modify Lebl with Fullemann because Lebl does not suffer from the drawback Fullemann aims to solve, namely, increased septa life without leakage; and there is no motivation to modify Fullemann with the teaching of Lebl because Fullemann is directed to gas chromatography injection into a moving carrier gas, whereas Lebl is directed to combinatorial synthesis begun after all reactants are loaded into a vessel. The only motivation to combine Lebl and Fullemann to produce the claimed invention wherein valves are opened for delivering fluid at pressures greater than about 10 psig and closed for maintaining the reaction mixtures at pressures greater than about 10 psig is from Applicants' own disclosure.

In addition, "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." *Id.* It may be possible to combine Fullemann and Lebl, but because neither suggests the desirability of the combination, the resultant combination is not obvious. Because there is no teaching in Lebl or Fullemann for the combination, one skilled in the art would not be motivated to use the Lebl apparatus with the Fullemann seal. As such, the Office has not met its burden in establishing a *prima facie* case of obviousness. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 163.

Claims 164-171 and 195, which depend directly or indirectly from claim 178, are submitted as patentable for the same reasons as claim 178.

Commercial Success of Invention

As noted in Applicants' previous submission (Amendment D, filed August 4, 2003), the Examiner is again requested to take into consideration the fact that the present invention has enjoyed commercial success, having been licensed to The Dow Chemical Company and ExxonMobil, among others. These licenses encompass the use of the apparatus and methodology described in the pending claims of this application. Further, the use of the apparatus and methods of the present invention have achieved excellent results, as demonstrated by the pages attached in Applicants' previous submission (marked A-F) taken from a presentation by Dow to a combinatorial materials science conference. The commercial success of the present invention is further evidence of non-obviousness.

Claim 166

Amended claim 166 defines an apparatus wherein the valve comprises a poppet movable by pressure **of the fluid injected against the poppet away from a valve seat** to open said conduit, and a spring for biasing the poppet toward said seat to close the conduit. Amended

claim 166 is allowable because the prior art references, even if combined, do not establish a *prima facie* case of obviousness.

Among other things, "[t]o establish a *prima facie* case of obviousness, . . . the prior art reference (or references when combined) must teach or suggest all the claim limitations." M.P.E.P. § 706.02(j). None of the cited references teaches or suggests all the claim limitations. In particular, none teaches a valve for fluid injection comprising **a poppet movable by pressure of the fluid injected against the poppet**. The valve of Fullemann opens because the needle physically forces the valve open. No fluid exits near the valve. Similarly, the septa disclosed in Lebl are opened when the needles are forced through the septa. Because none of the references discloses this element of claim 166, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 166.

Claim 178

Applicants respectfully request reconsideration of the rejection of claim 178 as obvious in view of Lebl, Fullemann and Calvet.

As stated in Amendment D, filed August 4, 2003, the apparatus for parallel processing of claim 178 includes a reactor block having a series of wells, a removable plate removably secured to the block, removable liners in the wells and an injection system for introducing fluid into the vessels at pressures different from ambient pressure. The removable plate is removably secured to the reactor block, facing an exterior surface of the reactor block, and has openings therein in registry with the wells in the reactor block. There is no teaching or suggestion in the art of record to include such a removable plate removably secured to a reactor block.

Specifically, claim 178 defines an apparatus for the parallel processing of reaction mixtures, comprising

> a reactor block having a series of wells therein extending down from an exterior surface of the block,

a removable plate removably secured to said reactor block and facing said exterior surface thereof, said removable plate having **openings therein in registry with the wells** in the reactor block,

removable liners in the wells for containing said reaction mixtures under pressure,

an injection system for introducing fluid into the vessels at pressures different from ambient pressure, said injection system comprising:

a movable fluid delivery probe;

fill ports for receiving the probe, said probe being movable from one fill port to another to deliver fluid;

conduits connecting the fill ports and respective wells;

valves for opening and closing said conduits, each valve being operable to open to permit the delivery of fluid from the probe to a respective well at a pressure different from ambient pressure, and to close after said delivery;

stirring mechanisms attached to said removable plate and removable with the plate for stirring said reaction mixtures, said **stirring mechanisms extending through the openings in the removable plate and into respective wells**, and

seals for sealing against leakage through said removable plate openings when the removable plate is secured to the reactor block.

None of the references teaches such a removable plate removably secured to a reactor block and facing an exterior surface thereof, wherein stirring mechanisms are attached to the removable plate and are removable with the plate for stirring the reaction mixtures. None of the references further teaches that the stirring mechanisms extend through the openings in the removable plate and into respective wells. Moreover, the Office action makes no specific reference to a teaching in any reference to each of these relevant features.

In particular, Lebl does not disclose these features. Lebl discloses a base plate 251 having an array of threaded ports for receiving vessels 250. (Lebl, Figs. 10A-10B, column 24, lines 1-38). Another plate 252 sits atop the base plate, cooperating with the base plate to locate and capture an array valve bodies 258 associated with each vessel. Lebl discloses two plates, but fails to disclose the following features of claim 178: (i) a **removable plate removably secured**

to a reactor block and facing an exterior surface thereof, (ii) **stirring mechanisms attached to the removable plate** and removable with the plate for stirring the reaction mixtures and (iii) **stirring mechanisms extending through the openings in the removable plate** and into respective wells. Lebl does not teach or suggest a removable plate removably attached to a reactor block. None of the reactor blocks of Lebl is combined with a plate of any kind. Lebl also fails to teach a stirring mechanism of any kind attached to a removable plate. Finally, Lebl discloses no stirring mechanisms extending through openings in a removable plate. Similarly, there is no relevant teaching in either Fullemann or Calvet regarding any of the foregoing features. Because the references cited in the Office action do not teach the features of claim 178, the combination cannot render claim 178 obvious.

The Office action makes no specific reference within any of the cited references to each of the claimed features. Applicants are therefore unable to ascertain the basis for the present rejection. As such, the Office has not met its burden of establishing a prima facie case of obviousness. Consistent with the interview noted above, Applicants respectfully request that any further rejection of claim 178 be made non-final and include specific recitations of prior art teachings believed to render claim 178 unpatentable.

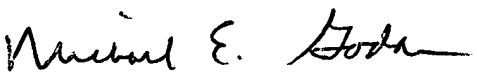
Claim 179, which depends directly from claim 178, is submitted as patentable for the same reasons as claim 178.

CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration of the pending claims and issuance of a Notice of Allowance in this case.

The Commissioner is requested to charge any other fee deficiency or overpayment in connection with this amendment to Deposit Account No. 50-0496.

Respectfully Submitted,



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